

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

4

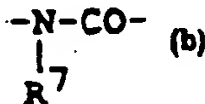
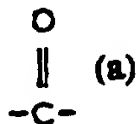
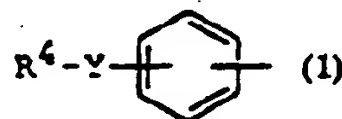
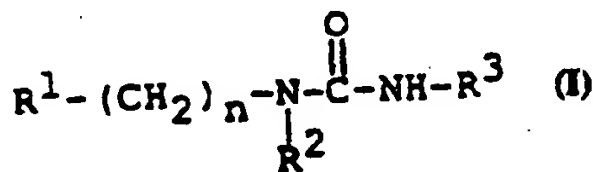
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6: C07C 275/28, C07D 213/75, 257/04, 231/12, 401/12, A61K 31/17, 31/44, 31/41, C07D 213/40, 307/38, 277/28, 233/54, C07C 311/21, C07D 333/20		A1	(11) International Publication Number: WO 96/10559 (43) International Publication Date: 11 April 1996 (11.04.96)
(21) International Application Number: PCT/JP95/01982 (22) International Filing Date: 29 September 1995 (29.09.95)		(74) Agent: SEKI, Hidco; Fujisawa Pharmaceutical Co., Ltd., Osaka Factory, 1-6, Kashima 2-chome, Yodogawa-ku, Osaka-shi, Osaka 532 (JP).	
(30) Priority Data: 9419970.0 4 October 1994 (04.10.94) GB 9506720.3 31 March 1995 (31.03.95) GB 9514021.6 10 July 1995 (10.07.95) GB		(81) Designated States: AU, CA, CN, HU, JP, KR, MX, RU, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(71) Applicant (for all designated States except US): FUJISAWA PHARMACEUTICAL CO., LTD. [JP/JP]; 4-7, Doshomachi 3-chome, Chuo-ku, Osaka-shi, Osaka 541 (JP).		<p>Published</p> <p>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</p>	
(72) Inventors; and (75) Inventors/Applicants (for US only): TERASAWA, Takeshi [JP/JP]; 1625-302, Matsugaokanakamachi, Kawachinagano- shi, Osaka 586 (JP). TANAKA, Akira [JP/JP]; 9-10-302, Nakano-cho, Takarazuka-shi, Hyogo 665 (JP). CHIBA, Toshiyuki [JP/JP]; 1-1-503, Nakatsuji-cho, Nara-shi, Nara 630 (JP). TAKASUGI, Hisashi [JP/JP]; 3-116-10, Mozu Umekita, Sakai-shi, Osaka 591 (JP).			

(54) Title: UREA DERIVATIVES AND THEIR USE AS ACAT-INHIBITORS

(57) Abstract

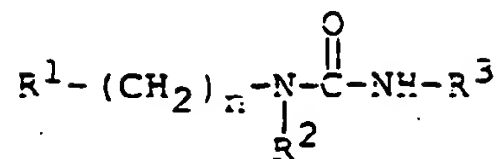
Urea derivatives of formula (I), wherein R¹ is a group of formula (I) (in which R⁴ is aryl which may have suitable substituent(s), or heterocyclic group which may have suitable substituent(s), and Y is bond, lower alkylene, -S-, -O-, (a), -CH-, -CONH-, (b), (in which R⁷ is lower alkyl), -NHSO₂-, -SO₂NH-, -SO₂NHCO- or -CONHSO₂-); or thiazolyl, imidazolyl, pyrazolyl, pyridyl, dienyl, furyl, isoxazolyl or chromanyl, each of which may have suitable substituent(s); R² is lower alkyl, lower alkoxy(lower)alkyl, cycloalkyl, ar(lower)alkyl which may have suitable substituent(s), heterocyclic group or heterocyclic(lower)alkyl, R³ is aryl which may have suitable substituent(s) or heterocyclic group which may have suitable substituent(s), and n is 0 or 1, and a pharmaceutically acceptable salt thereof which are useful as a medicament in the treatment of hypercholesterolemia, hyperlipidemia and atherosclerosis.



- 210 -

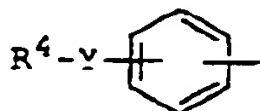
C L A I M S

1. A compound of the formula :



wherein

R^1 is a group of the formula :



(in which

R^4 is aryl which may have suitable substituent(s), or heterocyclic group which may have suitable substituent(s), and

Y is bond, lower alkylene, $-\text{S}-$, $-\text{O}-$, $-\overset{\text{C}}{\parallel}-$, $=\text{CH}-$, $-\text{CONH}-$, $-\underset{\text{R}^7}{\text{N}}-\text{CO}-$, (in which R^7 is lower alkyl), $-\text{NHSO}_2-$, $-\text{SO}_2\text{NH}-$, $-\text{SO}_2\text{NHCO}-$ or $-\text{CONHSO}_2-$;
or

thiazolyl, imidazolyl, pyrazolyl, pyridyl, thienyl, furyl, isoxazolyl or chromanyl, each of which may have suitable substituent(s);

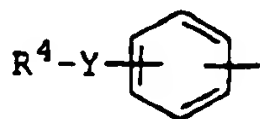
R^2 is lower alkyl, lower alkoxy(lower)alkyl, cycloalkyl, ar(lower)alkyl which may have suitable substituent(s), heterocyclic group or heterocyclic(lower)alkyl,

R^3 is aryl which may have suitable substituent(s) or heterocyclic group which may have suitable

- 211 -

substituent(s), and
 n is 0 or 1,
 and a pharmaceutically acceptable salt thereof.

2. A compound of claim 1, wherein
 R^1 is a group of the formula :



(in which

R^4 is phenyl which may have 1 to 3 substituent(s)
 selected from the group consisting of
 halogen, lower alkyl, di(lower)alkylamino,
 protected amino, cyano, heterocyclic group
 which may have mono(or di or tri)-
 ar(lower)alkyl, hydroxy, protected hydroxy
 and mono(or di or tri)halo(lower)alkyl;
 or thienyl, pyrazolyl, imidazolyl,
 triazolyl, pyridyl, pyrrolyl, tetrazolyl,
 oxazolyl, thiazolyl, oxadiazolyl,
 piperazinyl, thiazolidinyl or
 methylenedioxyphenyl, each of which may have
 1 to 3 substituent(s) selected from the
 group consisting of lower alkyl, mono(or di
 or tri)ar(lower)alkyl and oxo;

Y is bond, lower alkylene, -S-, -O-, $-\overset{\text{O}}{\underset{\parallel}{\text{C}}}-$, =CH-,
 -CONH-, -N-CO- (in which R^7 is lower alkyl),
 $-\underset{\underset{\text{R}^7}{|}}{\text{N}}\text{H}\text{SO}_2-$, -SO₂NH-, -SO₂NHCO- or -CONHSO₂-);
 or

thiazolyl, imidazolyl, pyrazolyl, pyridyl,